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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,075	04/12/2004	Kevin L. Denis	Page-6	2191
7590		06/10/2005	EXAMINER	
HungChang Lin		DAVIS, OCTAVIA L		
8 Schindler Ct.		ART UNIT		
Silver Spring, MD 20903		PAPER NUMBER		
		2855		

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/822,075	DENIS, KEVIN L.	
	Examiner	Art Unit	
	Octavia Davis	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 7-10, 12 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 – 6 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Belk et al.

Regarding claim 1, Belk et al disclose a remotely interrogatable apparatus and method for detecting defects in structural members comprising a material under test 10 having a metallic frame member 11, a test pattern 21, a transmitter 22 radiating a frequency signal and a remote sensing device 14 for detecting any deviation of the received signal from said transmitter as a measure of the presence of any crack in the material under test (See Col. 5, lines 1 – 13 and 7 – 12, Col. 6, lines 33 – 41 and Col. 7, lines 29 – 35).

Regarding claim 2, the remote sensing circuit 14 is inductively coupled to a LC tank circuit 21, 23 of said transmitter 22 (See Col. 7, lines 29 – 39, See Fig. 2A).

Regarding claims 3 - 5, the test pattern 21 is an inductor and the RF frequency signal shifts as a result of any sensed defect (See Col. 7, lines 29 – 48).

Regarding claim 6, the remote sensor 14 works in conjunction with the transponder 20 and the remoter interrogation device 22 to detect a phase of the signal (See Col. 7, lines 29 – 49).

Regarding claim 11, the radiated signal from the transmitter is picked up by the LC circuit (See Cols. 6 and 7, lines 33 – 53 and 29 – 40).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belk et al in view of Hosohara et al.

Regarding claim 13, Belk et al disclose all of the limitations of these claims except for demodulating said RF signal to measure the presence of any crack. However, Hosohara et al disclose a remote field flaw sensor for a metal pipe comprising a remote sensor 7 equipped with coil patterns (8,9,9a,10,10a) which radiating frequency signals, filter means 30 for removing frequency components (See Cols. 5 and 7, lines 1 – 41 and 30- 46).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Belk et al according to the teachings of Hosohara et al for the purpose of, eliminating detection errors which may be caused by a phase difference which changes due to a difference in the material of the metal pipe and to evaluate the existence of corrosion generated in the metal pipe and the depth of flaw by correcting the phase difference of the measured signals (See Hosohara et al, Col. 7, lines 43 – 53).

Regarding claim 14, in Belk et al, the test pattern 21 is an inductor used in the LC tank circuit 21, 23 of the oscillator, and the oscillator is frequency modulated by said crack (See Col. 7, lines 29- 48).

Allowable Subject Matter

5. Claims 7 – 10, 12 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Viertl et al (4,593,245) disclose an eddy current method for detecting a flaw in semi-conductive material.

Toth et al (4,355,281) disclose an eddy current surface flaw detection system.

Nihei et al (6,520,024) disclose a crack-type fatigue detecting sensor.

Harmon (3,487,799) discloses a coil apparatus and method for inducing eddy currents in a metallic object and detecting flaws in response to a change in impedance load.

Sheppard et al (5,399,968) disclose an eddy current probe for detection of cracks in multi-layered structures.

Danielson (5,541,510) discloses a multi-parameter eddy current measuring system with parameter compensation technical field.

7. Any inquiry concerning this communication should be directed to examiner Octavia Davis at telephone number (571) 272 - 2176. The examiner can normally be reached on Monday - Thursdays (9:00 - 5:00), Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Edward Lefkowitz, can be reached on (571) 272 - 2180. The fax phone number for the organization where this application where this application or proceeding is assigned is (703) 872 - 9306.



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